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Could Sludge Pipelines Build Marshes Quicker?

By KEN WELLS

Staff Reporter of THE WALL STREET JOURNAL

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PORT FOURCHON, La. -- While others scheme to save Louisiana's dying wetlands with an ambitious Mississippi River diversion plan, Kerry St. Pé thinks he has a far quicker solution.

His idea is to suck up dredged sediments from river bottoms -- a slurry of mud, sand and organic matter -- and pump it vast distances through pipelines so it can be deposited in eroded wetlands. Then the idea is to quickly replant the new marsh with scientifically tested plant varieties with a track record of withstanding the ravages of hurricanes.

On a recent day, Mr. St. Pé was out tromping some of his rebuilt marshes, part of a 760-acre cluster of brackish wetlands near the Gulf of Mexico, to see how they had survived the twin wallops of Hurricanes Katrina and Rita. It turned out that they'd stood up fine. Some of the plantings -- live oak, hackberry and sweet acacia saplings -- showed moderate storm damage, but the marsh had held firm, acting as both an erosion buffer and a haven for wildlife.

Only four years ago these tracts were shallow open water. The ancient natural marshes were killed by the same forces of erosion and saltwater intrusion that are destroying thousands of acres of the state's coastal marshes each year.


"This shows you what we can do now, not decades from now," says Mr. St. Pé (pronounced Saint Pay), a wetlands biologist and director of the nonprofit Barataria-Terrebonne National Estuary Program in Thibodaux, La. "And the problem is that we just don't have decades from now."

To build these marshes, Mr. St. Pé got the Greater Lafourche Port Commission, which owns the land, to pump through a pipeline sludge from one of its canal dredging projects. Eroded wetlands were refilled to the level of surrounding marshes. After the reclaimed land compacted into a boggy medium, the scientists replanted it with native vegetation. The plants are storm-hardened coastal varieties that have been painstakingly gathered from the Gulf Coast's hurricane alleys under the guidance of Gary Fine, a U.S. Department of Agriculture coastal-plants agronomist.

The technique has been used in five other projects in the 4.2 million acre Barataria-Terrebonne Estuary, west and south of New Orleans. The state's Department of Natural Resources also has used the process on the important Isles Dernieres barrier-island chain.

These modest successes have prompted state authorities to begin thinking about a far more ambitious application: a grand-scale pipeline or pipelines that would suck up millions of cubic

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feet of slurry bottom sediments from the Mississippi River -- where they clog navigation channels -- and move them scores of miles to the front lines of the coastal restoration fight.

While the state hasn't yet come up with an estimate of what such a plan would cost, Bob Roberts, a DNR manager helping to evaluate coastal restoration plans, thinks that sediment pipelines can work faster and less expensively than the ambitious river diversion schemes.

Pumping in sediment is only half the solution, since recreating wetlands without covering them in vegetation leaves them vulnerable to being washed away again. Mr. Fine and his colleagues at the USDA's Natural Resources Conservation Service in Galliano, La., have identified more than 45 storm-tested species, which they then studied in their greenhouse and lab. "The idea, for example, is to find those live oaks that stand right off the beaches, the trees that are used to salt and slashing winds, and see if we can reproduce them in large numbers," says Mr. Fine.

Once Mr. Fine identifies viable species, he gives them to commercial growers to replicate in numbers large enough to cover areas proposed as fill sites. One frustration, for now, is that planting must be done by hand, a slow and labor-intensive task. That's why Mr. Fine is now working on a project to mass produce seed for certain marsh grasses that could be sowed from planes, greatly speeding up the planting process.

Mr. St. Pé has also applied for grants for a project to propagate enough seedling stock of certain tree species for them to be given in large numbers to the public. The idea is to create an army of coastal-dwelling, ad hoc Johnny Appleseeds who will plant the trees as natural erosion and storm barriers.

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